PREPARED FOR

ANALYTICAL REPORT

Attn: Terri Choy AECOM 1001 Bishop Street Honolulu, Hawaii 96813

Generated 12/21/2022 6:24:58 PM

JOB DESCRIPTION

Red Hill - AFFF Assessment Sampling

JOB NUMBER

580-121295-1

Eurofins Seattle 5755 8th Street East Tacoma WA 98424



Eurofins Seattle

Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization

M. Elaine Walker

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Authorized for release by Marie Walker, Senior Project Manager M.Elaine.Walker@et.eurofinsus.com (253)248-4972 ď

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Client: AECOM

Project/Site: Red Hill - AFFF Assessment Sampling

Laboratory Job ID: 580-121295-1

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Case Narrative

Client: AECOM Job ID: 580-121295-1

Project/Site: Red Hill - AFFF Assessment Sampling

Job ID: 580-121295-1

Laboratory: Eurofins Seattle

Narrative

CASE NARRATIVE Client: AECOM

Project: Red Hill - AFFF Assessment Sampling

Report Number: 580-121295-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

One sample was received on 12/15/2022 9:35 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.4° C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

GLYCOLS - 2-(2-BUTOXYETHOXY)ETHANOL

Sample AF-RHMW17-WGN01B-2212WK2 (580-121295-1) was analyzed for glycols in accordance with EPA SW-846 Method 8015B - DAI. The sample was analyzed on 12/17/2022.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Definitions/Glossary

Client: AECOM Job ID: 580-121295-1

Project/Site: Red Hill - AFFF Assessment Sampling

Qualifiers

GC Semi VOA

Qualifier Qualifier Description

Undetected at the Limit of Detection.

Glossary

CNF

Appreviation	These commonly used appreviations may or may not be present in this report.
n	Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit

Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

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Client Sample Results

Client: AECOM Job ID: 580-121295-1

Project/Site: Red Hill - AFFF Assessment Sampling

Client Sample ID: AF-RHMW17-WGN01B-2212WK2 Lab Sample ID: 580-121295-1

Date Collected: 12/13/22 13:50 Matrix: Water

Date Received: 12/15/22 09:35

Method: SW846 8015C GLY - Glycols- Direct Injection (GC/FID)

Analyte	Result Qualifier	LOQ	DL Unit	D	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	30 11	5.0	1.1 mg/l			12/17/22 21:07	1

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QC Sample Results

Client: AECOM Job ID: 580-121295-1

Project/Site: Red Hill - AFFF Assessment Sampling

Method: 8015C GLY - Glycols- Direct Injection (GC/FID)

Lab Sample ID: MB 680-755698/10 **Client Sample ID: Method Blank Prep Type: Total/NA**

Matrix: Water

Analysis Batch: 755698

MB	MB

LOQ DL Unit Prepared Analyzed Dil Fac Analyte Result Qualifier 12/17/22 19:59 2-(2-Butoxyethoxy)ethanol 3.0 U 5.0 1.1 mg/L

Lab Sample ID: LCS 680-755698/1006 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 755698

	Spike	LCS LCS			%Rec
Analyte	Added	Result Qualifier	Unit E	D %Rec	Limits
2-(2-Butoxyethoxy)ethanol	20.0	22.8	ma/L	114	50 - 150

Lab Sample ID: LCSD 680-755698/7 **Client Sample ID: Lab Control Sample Dup** Prep Type: Total/NA

Matrix: Water

Analysis Batch: 755698

Analysis Daton. 100000									
	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
2-(2-Butoxyethoxy)ethanol	20.0	20.7		mg/L		103	50 - 150	10	50

12/21/2022

Lab Chronicle

Client: AECOM Job ID: 580-121295-1

Project/Site: Red Hill - AFFF Assessment Sampling

Client Sample ID: AF-RHMW17-WGN01B-2212WK2 Lab Sample ID: 580-121295-1

Date Collected: 12/13/22 13:50

Matrix: Water

Date Received: 12/15/22 09:35

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8015C GLY		1	755698	JCK	EET SAV	12/17/22 21:07

Laboratory References:

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: AECOM Job ID: 580-121295-1

Project/Site: Red Hill - AFFF Assessment Sampling

Laboratory: Eurofins Savannah

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority		Program	Identification Number	Expiration Date
ANAB		Dept. of Defense ELAP	L2463	09-22-24
The following analyte the agency does not		port, but the laboratory is not	certified by the governing authority.	This list may include analytes for which
Analysis Method	Prep Method	Matrix	Analyte	
8015C GLY		Water	2-(2-Butoxyethoxy)ethanol	

Eurofins Seattle

Sample Summary

Client: AECOM Job ID: 580-121295-1

Project/Site: Red Hill - AFFF Assessment Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-121295-1	AF-RHMW17-WGN01B-2212WK2	Water	12/13/22 13:50	12/15/22 09:35

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5755 8th Street East Tacoma, WA 98424

Chain of Custody Record

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Environment Testing America

Client Information	Sampler: Aw Phone: 3/4-	13 No	laver	- Lab	PM:	Valke	r						ımler T edEx	racking	No(s)			COC No: 2212W2EU-11		
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	314-	58 S-7	60	<u>M.E</u>	lain	e.Wal	ker@	Eurof	insET	.com			awaii					Page 1 of 1		
Company: AECOM			PWSID:						A	nalys	is R	equ	este	d				Job #:		
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Hawaii 96813	Compliance Proje	ct: .\Yes	A No]]		Ĭ		1				12	1				E · NaHSO4 F - MeOH	Q - Na2SO3 R - Na2S2O3	
Phone: 808-954-4512 / 808-356-5311	PO #:											1/	Wi	4/	ĺ			G - Amchlor	S - H2SO4	
Email:	WO #:				13		<u>}</u>	İ				1/	4/)	4			8	H - Ascorbic Acid	T - TSP Dodecahydrate U - Acetone	
Watson Tanji (watson.tanji@aecom.com)/ Brant Landers (brant.landers@aecom.com)	1				5	2				1	\mathbb{Z}	AV.	1					J - DI Water	V - MCAA	
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Sample Identification	Sample Date	Time	G=grab)	Matrix (W=water, S=solid, O=waste/oli, BT=Tissue, A=Air)		Perfo		Y									Ê	Special In	structions/Note:	
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Client: AECOM Job Number: 580-121295-1

Login Number: 121295 List Source: Eurofins Seattle

List Number: 1

Creator: Presley, Kim A

Creator: Presiey, Kim A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Client: AECOM Job Number: 580-121295-1

Login Number: 121295
List Source: Eurofins Savannah
List Number: 2
List Creation: 12/16/22 06:44 PM

Creator: Harley, Tynisha

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	

True

N/A

Eurofins Seattle

Samples do not require splitting or compositing.

Residual Chlorine Checked.